

OSD STUDY OF PROGRAM MANAGER TRAINING AND EXPERIENCE

VOLUME ONE OF TWO

**This study is part of the
OSD Program Management Certification Study
under the direction of
Mr. David Ahern,
Director, Portfolio Systems Acquisition
Office of the Secretary of Defense**

**Prepared by the Defense Acquisition University
with
representatives of academia and industry**

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VOLUME II. Observations and Recommendations of all 55 Program Manager Interviews

ACKNOWLEDGEMENT

The major contributors to this study are the fifty-five dedicated military officers and Department of Defense civilians who contributed their time, observations, and recommendations to this study in the interest of improving the outcomes of major defense acquisition programs.

OSD Study of Program Manager Training and Experience

Volume I

I. INTRODUCTION

This report deals with the training, qualifications, and experience of Department of Defense (DoD) program managers (PMs) responsible for managing multi-billion dollar engineering development and production industrial programs. It is based on a study conducted in the Spring 2009 at the request of Mr. David Ahern, Director for Portfolio Systems Acquisition in the office of the Deputy Under Secretary of Defense (Acquisition and Technology).

Mr. Ahern requested that the study be based on interviews of Acquisition Category (ACAT) I and II program managers to determine whether DoD is “teaching program managers the right things” and to identify any opportunities to improve the proficiency of program managers through (1) additional training or improvements in training and/or (2) additional experience requirements for program manager candidates.

This study follows by six months a study conducted by the Center for Naval Analysis (CNA) under the direction of the Defense Acquisition University (DAU). The CNA study developed a Program Management Competency Model and validated the model in part by asking program manager participants a standardized set of questions to include items related to frequency, criticality, and proficiency for each competency listed in the CNA Competency Model. [The CNA Report of October 2008 is entitled: *Improving the Certification, Training, and Development of the AT&L Workforce, October 2008*.] The CNA sample included program management personnel with titles ranging from program manager and deputy program manager to program management office (PMO) staff, integrated product team (IPT) leader, PMO section head, Staff billet, engineer, and logistics specialist on a variety of DoD acquisition programs. A majority of the CNA sample were government civilian personnel.

II. THE PLAN FOR THE CURRENT STUDY

The study described in this report was conducted by a team selected by the Office of the Secretary of Defense (OSD) from the acquisition workforce, from industry, and from academia. It was designed to supplement the CNA study by conducting individual interviews of program managers of major acquisition programs to obtain their views on the adequacy of the training and experience of program managers for dealing with the challenges encountered on major acquisition programs. The study included fifty-five interviews of program managers and program executive officers (PEOs). Eighty-five percent of the interviewees were military officers of a rank O6 to O9, including 13 general and flag officers who were recently or are currently program managers or program executive officers of major acquisition programs.

Fifteen percent of the interviewees were government civilians comparable to O6 military officers.

The study team obtained the names of interview candidates from the Army, Navy, Air Force, and Marine Corps acquisition workforce from current or recently retired officers. The interviews were conducted either face-to-face, or in the majority of cases, by telephone.

Participants in the study were informed in advance that the interviews would be conducted on a not-for-attribution basis. Each interview required approximately one-hour.

The project team developed an interview protocol designed to provide information in response to Mr. Ahern's request. While the interview records were not verbatim recordings, the persons conducting the interviews prepared a comprehensive written account of each interview. The comments were not edited to include or exclude any relevant information. The study team analyzed the records of the interviewee observations and recommendations, grouping the interview records by the topics addressed.

The initial part of the interviews collected information on each interviewee: military or civilian, sponsoring military service, grade or rank, academic background, acquisition training, and assignments related to acquisition.

Most interviewees provided extensive information on their academic training, as well as their acquisition training. All the program managers were level III certified in program management and a number of them were level III certified in one or more other functional specialties such as Test and Evaluation, Business, Cost Estimating, and Financial Management, or Logistics. The interviewers also obtained information on the experience of program managers prior to their assignment as program manager. Sample comments made by the interviewees are included in **Appendix A** along with the other observations and recommendations made in response to questions asked during the interview.

The interview protocol designed by the study project team for this study is contained in **Appendix B**.

III. TWENTY-TWO GENERIC PROGRAM MANAGER CHALLENGES

To enable the study team to understand where the training of program managers was and was not sufficient, the team prepared a list of 22 generic challenges program managers encounter on major acquisition programs (see Table 1). The interviewers read the list of challenges to each interviewee and asked each interviewee the following question, separately for each challenge: "Is acquisition training sufficiently practical and comprehensive (other than on-the-job training) to enable you to manage or deal effectively with this challenge [for each of the 22 challenges]?" The interviewers asked the interviewees to answer each challenge with a response of "yes," "no," or "uncertain." Where the response was "no," the interviewee was asked whether there were changes in training or additional training that could change the "no" to a "yes?"

Table 1 (below) shows the distribution of “Yes” responses to the question: Is acquisition training sufficiently practical and comprehensive (other than on-the-job training) to enable you to manage or deal effectively with this challenge? The challenges are arranged in the order, beginning at the top, with the challenge receiving the highest percentage of “Yes” responses and proceeding down the table to the challenge receiving the lowest “Yes” responses.

The first eight challenges in the list received “yes” responses from fifty percent or more of the interview participants, indicating they believed they were sufficiently trained to deal with the indicated challenge. The remaining fourteen challenges received “yes” responses from less than half the interviewees (i.e., 14% to 49%).

Table 1. Percent of interviewees answering “yes” to whether acquisition training was sufficiently practical and comprehensive.

	<u>“Yes”</u>
Responding to Military Service Inquiries	63%
Contracting Challenges	59%
Understanding and Using Government Financial Reports	55%
Responding to OSD Inquiries	55%
Systems Engineering Challenges	53%
Responding to Inquiries From Outside DoD	53%
Changes in Technical Requirements	51%
Test and Evaluation Challenges	51%
 Risk Management Challenges	 49%
Source Selection Challenges	45%
Logistics Challenges	45%
Changes in Directed Funding	43%
Technical Failures	43%
Changes in Directed Schedules	41%
Dealing with User Requirements	41%
Understanding and Using Contractor Financial Reports	39%
Earned Value Challenges	37%
Overseeing Contractor Performance	31%
Cost Estimating Challenges	27%
Software Management Challenges	25%
Cost Control Challenges	25%
Unexpected Cost Growth	14%

Table 2 (on page 6) shows the distribution of “No” responses and “No” + “Uncertain” responses to the question: Is acquisition training sufficiently practical and comprehensive (other than on-the-job training) to enable you to manage or deal effectively with this challenge? The challenges in this table are arranged in the order beginning at the top with the challenge receiving

the highest percentage of “No” or “No” + “Uncertain” responses and proceeding down the table to the challenge receiving the lowest “No” or “No” + “Uncertain” responses.

The first fourteen challenges received fifty percent or more “No” or “No” + “Uncertain” responses from the interview participants, indicating a majority of the interviewees believed they were not sufficiently trained to deal with the rated challenge. The remaining eight challenges received “No” responses ranging from 29% to 43%. When the “Uncertain” responses were added to the “No” responses, the remaining eight challenges resulted in ranges from 37% to 49%.

Table 2. Percent of interviewees answering “no” to whether acquisition training was sufficiently practical and comprehensive for each challenge.

	<u>“No”</u>	<u>“No”+ “Uncertain”</u>
Unexpected Cost Growth	76%	86%
Cost Control Challenges	61%	75%
Software Management Challenges	57%	75%
Cost Estimating Challenges	65%	73%
Overseeing Contractor Performance	57%	69%
Earned Value Challenges	47%	63%
Understanding and Using Contractor Financial Reports	47%	61%
Dealing with User Requirements	51%	59%
Changes in Directed Schedules	47%	59%
Changes in Directed Funding	51%	57%
Technical Failures	47%	57%
Source Selection Challenges	51%	55%
Logistics Challenges	45%	55%
Risk Management challenges	51%	51%
 Changes in Technical Requirements	 43%	 49%
Test and Evaluation Challenges	39%	49%
Systems Engineering Challenges	43%	47%
Responding to Inquiries From Outside DoD	41%	47%
Understanding and Using Government Financial Reports	35%	45%
Responding to OSD Inquiries	35%	45%
Contracting Challenges	37%	41%
Responding to Military Service Inquiries	29%	37%

IV. INTERVIEW QUESTIONS:

During the remainder of each interview the interviewers asked the interviewees to respond to the following three questions:

- Are program managers of major acquisition programs obtaining the training they need? (Follow up question): Can you suggest any additional acquisition training or training improvements other than on-the-job training that would assist future program managers in dealing with the challenges encountered on major acquisition programs?
- What acquisition experiences or assignments are necessary/desirable to prepare future program managers for the challenges they will encounter on major acquisition programs?
- Has the training and experience of your immediate subordinates/functional support staff been adequate?

Findings from interviewee responses to the first two questions are contained in the paragraphs below. Findings from responses to the third question (i.e. dealing with functional support staff) were less extensive, and are contained in volume two of this study.)

V. SUMMARY OF INTERVIEWEE FINDINGS

The interviewees showed no reticence in making specific observations and recommendations. Six hundred observations (see Volume II) and one hundred or more recommendations (many duplicative across interviewees) described the strengths and the opportunities for improvements in acquisition training and preparatory experiences. The observations and recommendations were grouped into thirteen major Findings relating to the subjects of this study. The Findings deal with three general areas: (1) Topics of Training; (2) Methods of Training; and (3) Acquisition Experience and Careers. The three areas are listed below with three-to-five Findings under each area heading. (see **Appendix A** for sample supporting observations from the interviewees.)

Area 1. The Topics of Training

Findings:

- i. Program managers need additional training in industry practices, including factors that motivate contractors and ways in which PMs can use incentives to achieve better program performance for the government customer.
- ii. Additional earned value training with applications, combined with experience in financial management, is necessary to enable program managers to use predictive indicators to anticipate program challenges,

assess more accurately the condition of their programs, and deal more effectively with financial problems.

- iii. Additional training and experience in contracting is necessary for program managers to deal more effectively with contracting officers and contractors.

Area 2. The Methods of Training

Findings:

- iv. Defense Acquisition University courses are strong contributors to program manager acquisition knowledge and skill. Nonetheless, program managers describe the need for additional training required to deal with the challenges encountered in managing major acquisition programs.
- v. Program manager training needs greater depth and more applications (i.e., scenarios and exercises).
- vi. The Program Management Office Course (PMT 352) Parts A and B could benefit from more applications and exercises in the certification requirement topics of contracts, incentives, financial management, and earned value.
- vii. The Program Manager's Course (PMT 401) is an effective course evolving new teaching materials and methods. The course could benefit from more attention to implementation planning and execution. Students should attend the course *prior to* beginning their assignment as program manager.
- viii. The Executive Program Manager's Course (PMT 402) is an effective course that students should attend *prior to* beginning their assignment as program manager. The course should consider offering annual refresher training for program managers.

Area 3. Acquisition Experience and Careers

Findings:

- ix. More rigorous personnel screening is necessary to select program manager candidates with business, engineering and technical backgrounds and skills needed to produce more proficient program managers.
- x. Program manager careers need more aggressive planning and execution to ensure that PMs have the preparatory assignments and experiences necessary for proficient management of ACAT I/II acquisition programs.

- xi. PMs need mentors and senior advisory teams to assist them in dealing with particularly complex challenges on major acquisition programs.
- xii. Improvements are needed in PM communications with users regarding technical requirements.
- xiii. Waivers issued for acquisition training and experience appear excessive and can inadvertently produce unqualified program managers.

Appendix A provides sample interviewee comments supporting each of the thirteen Findings. While Appendix A is somewhat lengthy, it provides some understanding of the basis of the Findings and the breadth of support for them. The interviewee observations in Appendix A are also likely to be particularly insightful for those in the Office of the Secretary of Defense and in the military services responsible for acquisition training courses and acquisition assignments.

Volume Two needs to be read in its entirety to gain the benefit of the full set of six hundred comments and suggestions provided by the program managers and program executive officers. The comments and suggestions are each presented under one or more of the Findings to which they relate.

VI. CONCLUSIONS AND RECOMMENDATIONS

The program manager interviews in this study leave no doubt that DoD managers of major acquisition programs are dedicated to their high technology jobs. But their observations and recommendations also lead to the conclusion that program managers are often wanting in the practical training and experience they need to deal with daily engineering, business analyses, and decision making challenges encountered on major acquisition programs. The size and complexity of multi-billion dollar engineering development programs pose some of the most difficult management challenges in the industrial world. One program manager in our study observed:

“Some people think that all one needs in higher-level acquisition positions is “leadership.” They seem to think that program managers preside over functional specialists who do all the substantive work, so there is no need to go toe-to-toe with the functional managers and industry managers. In reality, program managers need to be “engaged and involved” with the challenges that occur on large acquisition programs. They need to challenge their functional subordinates, peel back the onion of the functional area and understand what is being said and the weaknesses that exist in the reports they are receiving. They need to understand: Why are we doing what we are doing? Have you thought about this? Why are we behind in executing our budget? What is your spend plan?”

For decades, the Army, Navy, and Air Force have often sought to manage defense programs by assigning highly-motivated military officers as program managers, often with no more than a few months of acquisition training and modest acquisition experience. Such brevity in training and experience would be highly unlikely in the world of military operations or in the commercial world of managing large engineering development programs. Managers of major programs need the requisite training and experience to comply with the statutes, directives, and regulations, as well as to deal with the important technical and business challenges inherent in large advanced-technology programs.

Bringing about the improvements program managers call for requires major commitments by the military services and by the Office of the Secretary of Defense. Directors of Acquisition Career Management (DACMs), and Service Acquisition Executives (SAEs) need to find additional career training time for prospective program managers. Entering the acquisition workforce earlier in their careers (as some Air Force officers do) is one way of making time for the necessary training and experiences.

Reducing the number of experience waivers and expanding the number of applications and exercises in current training courses may be two objectives that can be achieved in the near term. Senior individuals responsible for managing careers of the acquisition workforce must themselves have first hand knowledge and experience of acquisition challenges to have credibility with their subordinates and to recognize the training and experience program

managers need. The lack of substantial acquisition experience for individuals assigned to the most senior acquisition billets was noted by a number of interviewees.

A review of the number and mix of requisite functional expertise of the faculty may be needed to ensure necessary training can be provided to the acquisition workforce. Introducing practical applications and exercises in courses is likely to require DAU supervisors and faculty who have the time and the interest to regularly visit program offices in the field, learn first-hand the challenges program managers encounter, and bring realistic case materials and lessons learned back to the classroom. Minor adjustment of the DAU faculty contribution assessment system may be necessary to document faculty performance objectives, to visit program offices, become current on the challenges encountered in the field, and to prepare appropriate learning assets. Meeting these performance objectives will provide more examples and applications across the AT&L Performance Learning Model to meet the acquisition workforce needs.

A repository for ‘lessons learned’ needs to be developed so faculty who conduct “Performance Support” work for field operations can share their information and knowledge across the acquisition workforce. This data base would assist all faculty in developing learning assets across the Performance Learning Model. This need not be in conflict with Performance Support. Indeed, they are complementary. But the evaluation system must provide significant emphasis on developing more current learning assets, or they will not become a reality.

The following near- and long-term recommendations for OSD and the military services are provided for consideration to improve both the quality of training and experience needed for program managers in the future:

Recommendations – Near term

1. OSD and/or the Services establish program manager advisory teams and arrange for mentors using selected former PMs in their follow-on assignments.
2. OSD and the Services ensure the training and experience standards for level III PMs are strictly adhered. Waivers should only be approved by the Service Acquisition Executives after careful deliberation of the prospective PM’s acquisition experience.
3. OSD establish a “training with industry” program at the OSD level; selection process would be similar/equivalent to service war college selection for the military and civilian acquisition workforce.
4. DAU initiate a program to strengthen and expand program manager training in earned value and financial management, along the lines of the procedures and findings of the NAVAIR Cost Department.
5. DAU continue to emphasize the training, performance support, and knowledge sharing opportunities DAU can provide to the acquisition workforce.

6. DAU progressively revise its courses to introduce more applications and exercises in response to the substantial needs cited by program managers.

Recommendations – Longer term

1. OSD and the Services establish an Acquisition Qualification Standard to track/verify experience in key acquisition areas, e.g., cost estimating, earned value, source selection, contracting, addressing the needs indicated in table 2 of this report.
2. OSD and the Services establish the military acquisition workforce as a primary occupational specialty for all services (comparable to current Air Force practice).
3. OSD and the Services develop program manager career track designations or specialty codes based on the acquisition framework system itself: the type of program assigned, e.g., weapon systems, services, information technology, etc. (For example, within aviation, there is a specific occupational code assigned to a pilot based on the type of aircraft the pilot is trained to fly.)

In acquisition, a person may be assigned to ACAT II weapon systems programs during the technology development (TD) phases. He/she would be given an occupational code indicating weapon systems/technology development. When the phase is completed, the individual could move to another weapon system entering technology development. Training would be provided on general or basic level skills, but additional training would be given for required technology development phase skill sets. The individual could move to other types of programs or work in other phases, but additional courses and experience levels would be required before an individual could be assigned the additional specialty code. This system would help to identify qualified candidates from a training and experience perspective for all ACAT program manager selections.

4. OSD and the Services give careful consideration to 1) developing Level IV certification experience and training criteria and 2) implementing a pilot program for a selected cadre of ACAT I PMs/DPMs to validate the certification process.
5. OSD and the Services provide incentives (e.g., monetary benefits, reimbursement of moving expenses, promotions, time off, education) to encourage civilians in the workforce to broaden their overall experiences and to seek program manager positions.

Appendix A

Findings with Sample Interviewee Comments

The interviews produced over 600 comments which the study team categorized into thirteen Findings below. These were grouped under topic areas to which they relate: 1. Topics of Training; 2. The Methods of Training; and 3. Acquisition Experience and Careers. Each Finding is followed by sample supporting comments from the interviewees. The complete listing of interviewee observations and recommendations is contained in Volume Two.

Area 1. The Topics of Training

- i. Program managers need additional training in industry practices, including factors that motivate contractors and ways in which program managers can use incentives to achieve better program performance for the government customer.**

Sample interviewee comments:

(See Volume Two for the complete set of interviewee comments that apply to Findings i to xiii.)

- a. Program managers need to acquire more knowledge of industry. They can do so through DCMA or training with industry. Program managers need to understand earned value management and how contractor managers are motivated.
- b. PM training needs to include more cases on how to avoid unexpected cost growth, and to hear more from industry on this topic.
- c. Training with industry is important. It used to be commonplace. PMs need to understand how contractors operate. It may be that today officers do not see training with industry as helping their career advancement, so they don't do it.
- d. DAU should teach future PMs more about contractor relationships. How do you know if everything is going as it should be in the program? And if it is not, what can and should you do about it? How does a PM know if all is going well in the functional areas in the PMO? DAU may need to have some very robust simulations to teach this. What can go wrong, and if it does, how do you go about fixing it?

- e. Program managers need to understand how businesses operate, and most do not. They need to understand how \$20B of cost growth affects industry. Actually, what makes revenue go up? profits go up? executive compensation goes up?. What motivates industry? Revenue, Profits, and Executive compensation. Those are big factors motivating industry. CEOs of large defense contractors make an average of \$20 million a year. One contractor produces more than 70% of the cost overruns on our programs. But the CEO in 2007 earned slightly under \$20 million. \$1.5 million in salary and the rest in incentives related to revenue, profits, and other factors.

- ii. **Additional earned value training with applications, combined with experience in financial management, is necessary to enable program managers to use predictive indicators to anticipate program challenges, assess more accurately the condition of their programs, and deal more effectively with financial problems.**

Sample interviewee comments:

- a. The required 24 hours of business management training is insufficient to prepare program managers to understand and handle the financial management challenges on major acquisition programs.
- b. Program managers need more training and experience in dealing with cost control challenges.
- c. Program managers need more training in evaluating and using EV information from contractors.
- d. Additional case studies and practical exercises are needed to train PMs to analyze spending plans, conduct variance analyses and deal with other cost control challenges. They also need more skill in negotiating with contractors.
- e. PMs need more training in anticipating and dealing with unexpected cost growth.
- f. PMs should be better trained to understand and use information from contractor financial reports to the government.
- g. Program managers need better preparation for conducting integrated baseline reviews.
- h. Program managers need to understand that funding needs to be phased with requirements and tasks to produce realistic baseline plans and schedules.
- i. Training in dealing with cost control challenges needs to be handled with case studies and practical exercises.

iii. Additional training and experience in contracting is necessary for program managers to deal more effectively with contracting officers and contractors.

Sample interviewee comments:

- a. DoD PMs often have significantly less knowledge and experience in contracting than their contractor counterparts. PMs need to be trained to read and understand the contracts relating to their acquisition program. They need training in the process of contracting as well as in the mechanics of contracting.
- b. PMs need to have sufficient depth in contracting to be able to have an intelligent discussion with their contracting officers and to know where a contracting officer does and does not have flexibility on a contract.
- c. PMs should be trained to a higher level of competence in contract incentives, including (a) award fees and (b) how government contributions to contractor overhead costs on a contract can reverse the intended effects (Low fees undermine contract incentives).
- d. My PM contracting training was only in the fundamentals; little training in incentives or in contracting strategies. PMs need more training to deal with contracting strategies and the intricacies of negotiations.
- e. PMs need to be trained in ways to provide contractors candid feedback on CPAF contracts.

Area 2. The Methods of Training

iv. Defense Acquisition University courses are strong contributors to program manager acquisition knowledge and skill. Nonetheless, program managers describe the need for additional training required to deal with the challenges encountered in managing major acquisition programs.

Sample interviewee comments:

- a. There is a substantial amount of training available at DAU today and it is good training. A real issue is that people are not given the time to take the training and some of the training in the available time does not get into sufficient depth. In the

past 15 years we have “leaned-out” the acquisition community so that today we have too few people.

- b. The acquisition corps certification program is quite good. The suggested iterative education, training, experience process is useful and should be adopted more widely.
- c. It would be helpful to have a DAU course pertaining to DASCs, PEMs, or ROs. It should contain information and examples of procurement and RDT&E forms, as well as monthly, quarterly, and annual reports to Congress. PMs prepare cost/schedule/technical performance reports quarterly. Training courses could answer the questions: How do you prepare to go through a DAB (Defense Acquisition Board)? Where do you stand in the POM and the program budget? Other topics for this course include DAES (Defense Acquisition Executive Summary) reporting SARs (Selected Acquisition Reports), how to interface with congressional staffers, how to reclaim a budget. - - - And what are the sources of all this information?
- d. It would be useful to have a program management certification examination or board. Today there is neither for program management. You simply take the courses, do the time, and are then certified. But people on the PM track often do not acquire the information and skill they should have. Especially in risk management. The problems lie in their limited ability to develop and evaluate alternatives and make decisions. I often push people to do this. If they have been taught, they do not seem to retain the tools.

v. Program manager training needs greater depth and more applications (i.e., scenarios and exercises).

Sample interviewee comments:

- a. PM candidates have a requirement for 24 hours of business management. That is not enough to convey any competence in financial management.
- b. In much of my acquisition training there were not a significant number of practical exercises in the course.
- c. DAU PM courses below the level of PMT 401 should put students through more practical exercises.
- d. Acquisition exercises should include preparing for milestone reviews, negotiating a contract modification, going through a source selection, reviewing contractor financial reports, understanding contractor overhead and how it responds to

program increases and decreases as well as how it responds when other acquisition programs conducted by the contractor are completed or canceled.

- e. I could have benefited from training in how to prepare for a DAB.
- f. We only get familiarization training with cost control challenges unless we live them.
- g. The glass is ½ full on each of the 22 PM challenges. There needs to be more training in how to apply and use the knowledge.
- h. In my training I do not recall ever having to write an acquisition strategy or a performance work statement, or to consider how to develop a work breakdown structure. PM training needs to have more practical applications.
- i. Some program managers are trained to perform the mechanics of Earned Value. They know how to calculate the different Earned Value quantities, but they usually do not know how to use the information in managing their programs.
- j. DAU needs more case studies with role playing, forcing each person to look at each part of the acquisition process.
- k. We need more practice in using risk management information.
- l. There needs to be better quality control on the DAU “Ask a Professor” program.
- m. PMs need to have sufficient training so they can perform a root cause analysis, going beyond cost performance indicators and schedule performance indicators.

vi. The Program Management Office Course (PMT 352) Parts A and B could benefit from more applications and exercises in the certification requirement topics of contracts, incentives, financial management, and earned value.

Sample interviewee comments:

- a. DAU’s more recent approach to training program managers: PMT 352, PMT 401, and PMT 402, is helpful. It makes good sense.
- b. The courses beyond ACQ 101 and 201 would be more effective if they had more practical exercises to help students do things.

- c. Skills in responding to the 22 challenges described in this study can be developed through case studies.
- d. DAU needs to continue to pump up the financial material in the course.
- e. PMT 352 would be more effective if DAU made sure that folks taking the course had at least a rudimentary experience level in acquisition.
- f. PM students need more training in Earned Value to gain a good understanding of what it is, why it is important, and how to use it.
- g. There needs to be more training on overseeing contractors in PMT 352, 402 and 403.
- h. Some people at higher levels in the Air Force think that all people need in higher-level acquisition positions is leadership. They seem to think that program managers preside over experts who do all the work. In reality, program managers need to be engaged and involved with the challenges that occur on large acquisition programs. They need to be able to challenge their functional subordinates, peel back the onion of the functional area and understand what is being said and the weaknesses that exist in the reports they are receiving. They need to understand: Why are we doing what we are doing? Have you thought about this? Program managers need to be able to talk about costs: Why are we behind in executing our budget? What was your spend plan?
- i. When DAU moved to on-line courses and to shortened courses for Level II certification and Level III certification, it lost some rigor in certification requirements. Program managers need to have an in-depth knowledge of contracts, incentives, financial management, engineering, logistics, and PPBS.

- vii. The Program Manager's Course (PMT 401) is an effective course evolving new teaching materials and methods. The course could benefit from more attention to implementation planning and execution. Students should attend the course *prior to* beginning their assignment as program manager.**

Sample interviewee comments:

- a. The PMT 401 Case studies are a very useful educational method. You see a lot of things happening.
- b. Using cases in PMT 401 is an excellent teaching approach. DAU needs to take greater care to make sure the students taking the course have the pre-requisite and acquisition training. In my class there were a number who didn't.

APPENDIX A

- c. Program managers often do not have good problem-solving skills – digging down to get the data, analyzing the options, selecting an option. PMT 401 was designed to build these skills. There were a substantial number of cases but too little time to give the cases more than a lick and a promise. The time allocated to preparing cases did not allow us to get deep enough into problem solving as if it were a real case.
- d. I would like to see more cases in PM training on how to avoid unexpected cost growth, and hear more from industry on this topic.
- e. I took the PMT 401 course at ICAF, three cases one afternoon a week for eight months. It was excellent. The DAU 401 faculty was very good. I learned a lot from my fellow students as well.
- f. There needs to be more time in PMT 401 to talk about how to do planning and implementing courses of action. This should include Earned Value, Source Selection, POMs, and Budgets. We should not just read and analyze these topics, but plan what to do about situations. How do we handle cost and schedule overruns.
- g. Consider adding more cases dealing with cost estimating. Cost estimates go up all of a sudden as a program proceeds.
- h. The PMT 401 faculty need more hands-on experience to be able to direct students to get into greater depth.
- i. The EV cases dealt with important situations but a number of cases were weak.
- j. The Looking Glass exercise is a waste of time for military officers. We did not give accurate feedback to people. Honest feedback was not what we were supposed to do. If you are going to use the Looking Glass exercise, use it in PMT 352, not PMT 401.
- k. People assigned to be deputy program managers need to go through PMT 401.
- l. I believe the Services should send O-4 and O-5 officers to that program (i.e., PMT 401 course). But they should have this training before they are assigned to a PMO. Assigning someone to a job, having them begin the job, and then having them leave for 10 weeks of training is crazy. That would never happen on the operational side of the Navy. The Navy thinks about training for operations very differently than they think about training for acquisition. People working in Navy acquisition do not think it is a well managed career field.
- m. A problem I have with the PMT 401 program is that the Air Force sends people there after they have been assigned and settled in their new acquisition assignment.

Then after they begin their new job, they have to pick up and go to Ft. Belvoir for the 10-week PMT 401 course. Then later, after they are in a new assignment, they have to find time to leave their job and go to the 4-week PMT 402 course. All this would make sense if the training were accomplished while the officers were in transit, before they began the job for which the training is supposed to prepare them. As it is, the sequencing is disruptive and distracting, both from the job where the persons are supposed to be working, and from the course where the officers are supposed to be immersed in the course material. PMT 401 students should attend the course before beginning their PM assignment. I have discussed this arrangement with a dozen people who have been sent to PMT 401 and they agree with me. The present sequencing takes valuable time out of the workforce.

- n. We send our company people to PMT 401 regularly and we like the case study classes very much. We have some good case study candidate situations at our company. The cases could present both the government side and the industry side of a situation.

viii. The Executive Program Manager’s Course (PMT 402) is an effective course that students should attend *prior to* beginning their assignment as program manager. The course should consider offering annual refresher training for program managers.

Sample interviewee comments:

- a. The DAU EPMC (PMT 402) course is tailored to a joint program and not to a service-specific course. We need more prescriptive courses that deal with what do I do with the outputs I receive.
- b. I would like to have an annual update of the PMT 402 course, with GAO professional staffers and OSD people.
- c. There needs to be a block in PMT 402 devoted to service-specific topics, otherwise none of these topics are taught.
- d. There is no requirement for PM re-certification. I obtained my PM level certification training 15 years ago. There is no requirement for re-certification. I believe there should be.
- e. The courses beyond ACQ 101 and 102 would be more effective if they had more practical exercises to help train us to do things.
- f. In PMT 352, 402, and 403 there needs to be more training on overseeing defense contractors.

- g. It would be more useful if the field visits to the Pentagon and OSD could be separate for each service so we learn more about how we do Navy acquisition and become more familiar with the offices in our service and how they operate.
- h. Air Force students in PMT 402 tend to be well prepared. Navy students often have little acquisition experience, Army students vary.
- i. PMs often do not understand the drivers of private industry. The DAU courses are driven by the FAR and the 5000 directive. PMs need to understand how specific variables (see Part B) drive industry manager decisions.
- j. There is some overlap between PMT 401 and 402. If you take them close together, there is some repetition.
- k. In PMT 402 and the more junior courses, students need more help in learning how to *implement* the concepts they are being taught.

Area 3. Acquisition Experience and Careers

- ix. More rigorous personnel screening is necessary to select program manager candidates with the business, engineering and technical backgrounds and skills needed to produce more proficient program managers.**

Sample interviewee comments:

- a. DoD program managers need to have a science or engineering background and significant training and experience in acquisition.
- b. PMs disapprove of awarding “acquisition experience credits” for assignments having little to do with acquisition.
- c. PMs need to have a quantitative bent or they are in trouble from the start.
- d. PMs need to be able to stand toe-to-toe with their functional counterparts and with industry managers.
- e. PMs need to have had cost, schedule and technical performance responsibilities prior to becoming a PM.
- f. A PM needs to have had APM experience involved in some way in contract management.

- g. An effective PM needs to be knowledgeable and experienced in two or more functions in a PMO.
- h. PMs need more training and experience in financial management.
- i. PMs need to have had experience with design reviews and in working with contractors.
- j. PMs need to be sufficiently savvy in the functions to be able to integrate the functions.
- k. There is often a problem with people who have been trained in PM concepts but have not developed the skills to apply or implement the training.
- l. There is no certification board for program management. PM candidates simply take the courses, do the time, and then are certified.
- m. Many late-career acquisition entrees rely on contractor support to carry the burden of their assignments.
- n. The Navy needs to evaluate and enforce the experience part of DAWIA requirements. Program managers need genuine acquisition experience.
- o. A number of people are in the field of program management without a degree in science, math, or physics. They think program management is a job of presiding over a group or team, but not going toe-to-toe with the functional managers and industry managers. If people are not interested in math or science, or dislike math and science in favor of English, history, and political science, defense program management is the wrong place for them. Program management is a place to get in and engage; it is not a place to preside.

x. Program manager careers need more aggressive planning and execution to ensure that PMs have the preparatory assignments and experiences necessary for proficient management of ACAT I/II acquisition programs.

Sample interviewee comments:

- a. Acquisition experience needs to be interspersed between training requirements. Taking one acquisition course right after another doesn't do the job.
- b. PMs need to have spent significant time in program offices before being assigned as a program manager.
- c. What holds back military officers from seeking the needed experience? The necessity of going through a number of wickets for promotion.

- d. PMs need more experience dealing with most of the 22 challenges referred to in this study.
- e. Army people get all sorts of constructive acquisition credit for assignments that have little to do with acquisition.
- f. The military services are giving people credit for eight years experience in acquisition that is often not really acquisition experience.
- g. PM candidates should be rotated to more than one PMO to gain a breadth of experience.
- h. Some of our worst acquisition stumbles come from program managers with lots of operations experience and little genuine acquisition experience.
- i. It is important that PMs receive more training and experience in budgeting and money operations (including integrated master schedules).
- j. Before program managers are assigned responsibility for an ACAT I program they need to have worked on an ACAT II or III program in a position where they have been responsible and accountable.
- k. When I have to select a PM, I am lucky if I can find someone who has had a job in a PM office.
- l. Why do they allow PM assignments with this lack of acquisition training and experience? Because they look upon acquisition assignments as paper-work.
- m. PM superiors should be trained, experienced, and successful in acquisition management. All the higher-level positions in acquisition are military, and a significant number of the military officers in those positions lack experience in program management or even acquisition. This situation sends a destructive message to acquisition professionals.
- n. Military officers aspiring to be program managers should be assigned to program management offices when they are senior O-3s or O-4s. This often does not occur.
- o. Very few PM candidates have sufficient training in financial planning and control. It is critical to program success that PMs be proficient in implementing these skills.

xi. PMs need mentors and senior advisory teams to assist them in dealing with particularly complex challenges on major acquisition programs.

Sample interviewee comments:

- a. When personnel enter the acquisition field they should be guided through on-the-job training.
- b. The best preparation for a future program manager is working with extraordinary leaders – mentors.
- c. Today DoD lacks mentors for mid-level acquisition personnel. We have a lack in our workforce at the mid-level.
- d. We make noise about mentors and mentorship but fail to implement.
- e. Acquisition systems centers need permanent graybeard teams of trained and experienced people to help program managers when they have difficult decisions to make.

xii. Improvements are needed in PM communications with users regarding technical requirements.

Sample interviewee comments:

- a. Need to find ways to improve communications between acquisition personnel and requirements personnel.
- b. Need training to achieve and maintain better parity between acquisition requirements and funding limits.
- c. PMs need to understand the second and third order effects of changes in requirements.
- d. PMs need to be trained in ways to control the practice of overstating technical requirements.
- e. PMs need to be trained in ways to work more effectively with the requirements community.

- f. PMs need to be better prepared to understand requirements documents and to deal with the difficult requirements issues of IT programs.
- g. Requirements writers need more effective training in how to communicate their needs to the acquisition community.
- h. PMs need to be trained how to obtain more realistic requirements documents. That competence will require proficiencies in analytical training and trade-off analyses.

xiii. Waivers issued for acquisition training and experience appear excessive and can inadvertently produce unqualified program managers.

Sample interviewee comments:

- a. The failure of some senior service personnel to understand the complexity of the acquisition management process leads to their use of training and experience waivers. There is substantial disapproval among PMs and PEOs over the issuance of these waivers.
- b. There are often waivers issued by the military services for the required training on the grounds that a smart leader should be able to pick up acquisition management quickly. If you needed prostate surgery, you wouldn't want it performed by a doctor who had little training and thought it was a simple job.
- c. The services issuing waivers for PM training and experience is a continuing problem.
- d. The USD(AT&L) would be well advised to regularly determine how many program managers meet all the training and experience requirements and which ones obtained their certifications with waivers. Then, after identifying these numbers the USD would be well advised to put in place a program to track and reduce the number of waivers.

Appendix B

Interview Protocol for Current and Recent PMs and PEOs

Date: _____

Person Interviewed: _____

Location: _____

Introduce self: I am calling you at the suggestions of _____
in connection with a program management study for the office of the
Under Secretary of Defense (AT&L).

The study is designed to collect candid, “not for attribution” views of current and prior DoD program managers on the kinds and amount of training and experience needed by people selected to manage future major defense acquisition programs.

[The project is not an assessment of current or past program managers or training. It focuses on the training and experience needed by managers of future DoD acquisition programs.]

a. Please give us a brief overview of the assignments you have had in defense acquisition.

b. Have you been assigned to an ACAT III acquisition program – or a non-ACAT rated program?

What position were you assigned?

What was the duration of that assignment?

c. What type programs have you been assigned to?

_____ Weapon Systems

_____ Business Management

_____ Services

_____ International

d. What, if any, DAU acquisition courses have you completed?

e. What non-DAU acquisition courses have you completed?

f. Are program managers of major acquisition programs receiving the training they need?

(Follow up): Can you suggest any additional acquisition training or training improvements, other than on-the-job training, that would assist future program managers in dealing with the challenges encountered on major acquisition programs?

g. What acquisition experiences or assignments are necessary/desirable to prepare future program managers for the challenges they will encounter on major acquisition programs?

h. Has the training and experience of your immediate subordinates or functional support staff been adequate? (*If No, a brief comment or explanation will help us identify any improvements that need to be made.*)

i. Is acquisition training other than on-the-job-training sufficiently practical and comprehensive to allow you to effectively manage or resolve the following challenges? (Please provide a **Yes**, **No** or **Uncertain**. If “No”, a brief comment or explanation will help us further evaluate the training for improvement)

- _____ Challenges of Unexpected Cost Growth
- _____ Challenges of Changes in Directed Schedules
- _____ Challenges of Changes in Directed Funding
- _____ Challenges of Changes in Technical Requirements
- _____ Challenges of Dealing with User Requirements
- _____ Challenges of Technical Failures
- _____ Systems Engineering Challenges
- _____ Software Management Challenges
- _____ Risk Management Challenges
- _____ Cost Estimating Challenges
- _____ Understanding and Using Contractor Financial Reports
- _____ Understanding and Using Government Financial Reports
- _____ Cost Control Challenges
- _____ Earned Value Challenges
- _____ Test and Evaluation Challenges
- _____ Source Selection Challenges
- _____ Contracting Challenges
- _____ Challenges of Overseeing Contractor Performance
- _____ Logistics Challenges
- _____ Challenges of Responding to Military Service Inquiries
- _____ Challenges of Responding to OSD Inquiries
- _____ Challenges of Responding to Inquiries from Outside DoD
(e.g., Media, GAO, Congress)

APPENDIX B

j. What is your formal training background:

- _____ Civil Engineering
- _____ Liberal Arts
- _____ Communications
- _____ Sociology / Social Science / Psychology
- _____ Physical Science Physics, Chemistry, Biology
- _____ Other (specify) _____

k. Do you have a formal certification level in DoD acquisition?
(Certification I, II, III? in PM or in a functional area?)

_____ Civilian or _____ military?

Grade level _____ or Rank _____

Employer:

- _____ Army;
- _____ Navy;
- _____ Marine Corps;
- _____ Air Force;
- _____ OSD
- _____ Other (specify) _____.